REMARKS

Claims 30 and 43-44 have been amended. Claim 47 has been canceled. Claims 30-46 and 48 are now pending. Applicant reserves the right to pursue the original claims and other claims in this and other applications. Please reconsider the above-referenced application in light of the amendments and foregoing remarks.

Claims 30-46 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The rejection is respectfully traversed. The claims have been amended to obviate the Examiner's concerns. Specifically, claims 30 and 43 recite a polarization hologram that diffracts an incident reflection beam in predetermined diffracting directions depending on the wavelength and polarizing directions of the incident reflection beam.

Claims 30-42 stand rejected under 35 U.S.C. § 112, second paragraph, as being incomplete for omitting essential steps. The rejection is respectfully traversed. The claims have been amended to obviate the Examiner's concerns. Specifically, steps of forming a periodic grating pattern on a birefringence layer have been added to claim 30.

Claims 30-32, 35-42, and 43-45 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,739,952 ("Takeda") in view of U.S. Patent No. 5,244,713 ("Nakamura"). The rejection is respectfully traversed.

Takeda does not teach or suggest a method of forming a polarization hologram by patterning a uni-directionally stretched birefringence layer without etching a substrate, as recited in claims 30 and 48. Takeda does not teach or suggest a method of forming a polarization hologram by attaching a uni-directionally stretched birefringence layer to a substrate with an adhesive layer, as recited in amended claim

30. Similarly, Takeda does not teach or suggest a polarization hologram in which the depth of the periodic grating pattern is essentially equal to a thickness of the uni-directionally stretched birefringence layer, as recited in amended claim 43.

Takeda's glass substrate 1 and birefringent film 2 are formed with a periodic grating pattern. The depth of Takeda's periodic grating pattern 1a, 1b is not essentially the same thickness as birefringent film 2 since substrate 1 is etched. For example, in Takeda's FIGS. 1 and 2, the "surface of the glass substrate 1 is provided with a periodic pattern of ridges and grooves to form a grating." (Col. 6, lines 1-2). The "[r]idges 1a on the surface of the glass substrate 1 are coated with a thin birefringent film 2 which is formed of polydiacetylene." (Col. 6, lines 2-4). Takeda's birefringent film 2 and substrate 1 are etched simultaneously to form grooves 1a, 1b in glass substrate 1.

Moreover, Applicant submits that there is no motivation to combine Takeda and Nakamura. Takeda discloses a thin birefringent film formed of polydiacetylene represented by the formula in col. 6, lines 5-20. Nakamura, in contrast, discloses forming an optical film using a thermoplastic resin. The thermoplastic resin is used for coatings such as displays, laser cards, or sunglasses. There is no suggestion that Nakamura's sheet can be used on a glass substrate or in semiconductor etch processing. In fact, there is no teaching or suggestion that Nakamura's sheets can be etched. Takeda also discloses that the birefringent film 2 is polymerized on the glass substrate 1. Thus, Nakamura's uniaxially stretched film would be polymerized with Takeda's teachings, undesirably affecting the retardation values established by uniaxial or biaxial stretching.

Still further, the methods in Takeda and Nakamura are completely different from each other. As a result, structural features such as the thickness and the retardation value would be completely different in the two films, respectively. The

proposed combination would defeat the very purpose of Takeda: forming a birefringent film comprising polydiacetylene by polymerizing it on a glass substrate oriented in the rubbing direction. The proposed combination is improper hindsight reconstruction.

Claims 31-32 and 35-42 depend from claim 30. Claims 44-45 depend from claim 43. Dependent claims 31-33, 35-42, 44-45, and 47 should be allowable for at least the reasons provided above with regard to independent claims 30 and 43, and on their own merits.

Applicant also respectfully submits that the Office Action has not set forth a *prima facie* case of obviousness in regards to claims 35 and 37-39. See M.P.E.P. § 2142. In particular, Nakamura does not teach or suggest Applicant's heat-stretching process temperature that is performed at a temperature of 350°C. Nakamura, in contrast, discloses a heat stretching process conducted at a temperature between 190 to 230°C. Applicant's claimed temperature is at least 120°C higher than Nakamura's disclosed temperature.

Claims 33-34 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeda and Nakamura, and further in view of U.S. Patent No. 5,245,456 ("Yoshimi") and U.S. Patent No. 6,040,418 ("Yamamoto"). The rejection is respectfully traversed.

Claim 33 depends from independent claim 30 and claim 34 depends from claim 33. For at least the reasons provided above regarding claim 30, claims 33 and 34 should be similarly allowable. In particular, Takeda and Nakamura do not teach a substrate which is not etched. Takeda discloses etching the substrate and the birefringent film simultaneously. Yoshimi and Yamamoto are relied upon for

disclosing polyimide resign and acidic solution, respectively. Both references, however, add nothing to rectify the deficiencies of Takeda and Nakamura.

Claim 46 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Takeda and Nakamura, and further in view of Iwatsuka. The rejection is respectfully traversed. Claim 46 depends from claim 45, which depends from claim 43. For at least the reasons provided above regarding independent claim 43, claim 46 should be similarly allowable. Iwatsuka is relied upon for disclosing a second substrate formed with an adhesive layer as the isotropic layer, and adds nothing to rectify the deficiencies of Takeda and Nakamura.

Claims 30-46 stand rejected under the judicially created doctrine of obviousness type double-patenting as being unpatentable over claims 1-9 of U.S. Patent No. 6,618,344 ("Funato") in view of Nakamura. The rejection is respectfully traversed.

Applicant respectfully submits that the claims of the present application recite important limitations that are not obvious over the claims of Funato. For instance, claim 1 of Funato recites an optical pickup apparatus with "a birefringence layer of a stretched organic polymer material." Claims 2-9 of Funato depend from claim 1. Claim 30 of the present application, in contrast, defines a method of forming a polarization hologram by not etching the substrate. Claim 30 is not directed to an optical pickup apparatus. Claim 43 of the present application defines a polarization hologram structure and recites "a uni-directionally stretched birefringence layer with a periodic grating pattern comprising organic polymer material affixed to said substrate . . . wherein the depth of said periodic grating pattern is essentially equal to a thickness of said uni-directionally stretched birefringence layer."

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue.

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Respectfully submitted,

By _____

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